CLAIMS

What is claimed is:

1. A method of controlling parasitic mites of honey bees, which comprises exposing parasitic mites to a miticidally effective amount of a compound, comprising:

(a) a ketone of the structure:

CH_3 - $(CH2)_x$ -CO-$(CH2)_y$ - CH_3

wherein y is 0 and x is 0 to 5 or wherein y is 1 or 2 and x is 3 or 2, respectively;

or

(b) a compound selected from the group consisting of 1-heptanol, ethyl butyrate, benzaldehyde, heptaldehyde, and d-limonene,

wherein said miticidal amount is effective to kill mites, to incapacitate mites such as by disrupting neural or other physiological functions to prevent essential mite functions or reproduction, or to render mites impaired sufficiently to be trapped, drowned, isolated, or otherwise removed from an area.

2. The method of claim 1 wherein said parasitic mites are Varroa mites.

3. The method of claim 1 wherein said controlling is carried out by placing said effective amount of said miticidal compound inside a honey bee hive so that vapors of said compound are distributed in the hive.

4. The method of claim 1 wherein said effective amount of said miticidal compound is dispensed by a dispensing means comprising a device or formulation which provides controlled release, slow release or sustained release of said compound.

5. The method of claim 4 wherein said parasitic mites are exposed to an effective amount of said miticidal compound for one or more brood cycles.

6. The method of claim 5 wherein said parasitic mites are exposed to an effective amount of said miticidal compound for two or more brood cycles.

7. The method of claim 1 wherein said miticidal compound is 2-heptanone.

8. A method of controlling parasitic mites of honey bees, which comprises placing in an area where mites are to be attracted a dispenser means which provides an amount of 2-heptanone effective to attract parasitic mites.

9. The method of claim 8 wherein said parasitic mites are Varroa mites.

10. The method of claim 8 wherein said dispensing means comprises a device or formulation which provides controlled release, slow release or sustained release of 2-heptanone.

11. A method of controlling hive invading pests of honey bees, which comprises placing in an area where pests are to be controlled a dispenser means which provides an effective hive invader-controlling amount of 2-heptanone.

12. The method of claim 11 wherein said dispensing means comprises a device or formulation which provides controlled release, slow release or sustained release of 2-heptanone.

13. The method of claim 11 wherein said hive invading pest is selected from the group consisting of greater wax moth, lesser wax moth, small hive beetle, ants, and Tropilaelaps.

14. The method of claim 11 wherein said hive invading pest is the greater wax moth, *Galleria mellonella*.

15. A miticidal composition for controlling parasitic mites of honey bees which comprises a dispenser means which provides a miticidally effective amount of a compound, comprising:

(a) a ketone of the structure:

$CH_3 - (CH2)_x - CO-(CH2)_y - CH_3$

wherein y is 0 and x is 0 to 5 or wherein y is 1 or 2 and x is 3 or 2, respectively;

or

(b) a compound selected from the group consisting of 1-heptanol, ethyl butyrate, benzaldehyde, heptaldehyde, and d-limonene,

wherein said miticidal amount is effective to kill mites, to incapacitate mites such as by disrupting neural or other physiological functions to prevent essential mite functions or reproduction, or to render mites impaired sufficiently to be trapped, drowned, isolated, or otherwise removed from an area.

16. The composition of claim 15 wherein said dispensing means comprises a device or formulation which provides controlled release, slow release or sustained release of said compound in a miticidally effective amount.

17. The composition of claim 15 wherein said dispensing means provides an effective amount of said miticidal compound for one or more brood cycles.

18. The composition of claim 15 wherein said parasitic mites are Varroa mites.

19. An attractant composition for attracting parasitic mites of honey bees, which comprises a dispenser means which provides an amount of 2-heptanone effective to attract parasitic mites.

20. The composition of claim 19 wherein said dispensing means comprises a device or formulation which provides controlled release, slow release or sustained release of 2-heptanone effective to attract parasitic mites of honey bees.

21. The composition of claim 19 wherein said parasitic mites are Varroa mites.

22. A trapping system for controlling parasitic mites of honey bees, which comprises a trapping means and a dispenser means which provides an effective mite-attracting amount of 2-heptanone, wherein said dispenser means is located within sufficient proximity to said trapping means so that mites that are attracted are trapped.

23. A composition for controlling hive invading pests of honey bees, which comprises a dispenser means which provides an effective hive invader-controlling amount of 2-heptanone.

24. The composition of claim 23 wherein said dispensing means comprises a device or formulation which provides controlled release, slow release or sustained release of 2-heptanone effective to control hive invading pests.

25. The composition of claim 23 wherein hive invading pest is selected from the group consisting of greater wax moth, lesser wax moth, small hive beetle, ants, and Tropilaelaps.

26. The compositions of claim 23 wherein said hive invading pest is the greater wax moth, *Galleria mellonella*.